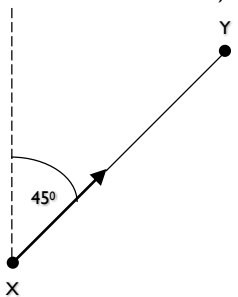


TERM THREE
WEEKLY LESSON NOTES
WEEK 6

Week Ending: 21 st OCT, 2022	DAY:	Subject: Mathematics
Duration: 60MINS		Strand: Geometry & Measurement
Class: B7	Class Size:	Sub Strand: Scalar and Vector Quantities
Content Standard: B7.3.2.3 Demonstrate understanding of bearings, vector and its components using real life cases	Indicator: B7.3.2.3.3 Distinguish between scalar and vector quantities	Lesson: 1 of 2
Performance Indicator: Learners can distinguish between scalar and vector quantities		Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)
References: Mathematics Curriculum Pg. 70		
Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	Revise with learners on the previous lesson. Share performance indicators and introduce the lesson.	
PHASE 2: NEW LEARNING	<p>Brainstorm learners for the meaning of scalar quantity and vector quantity.</p> <p>A vector quantity is any quantity which has both magnitude and direction. Examples are displacement, acceleration, momentum, velocity, etc. Whiles A scalar quantity has magnitude only. Examples are time, speed, distance, mass, etc.</p> <p>Draw on the board, a representation of a vector.</p>  <p>The directed line segment XY is a vector. The length of the line segment XY is the magnitude of the vector and the direction is represented by the bearing 045°.</p> <p>Have learners read on the internet for more information on scalar quantity and vector quantity.</p> <p>Put learners into groups of five. Have them group these examples under scalar quantity and vector quantity, weight, force, velocity time, speed, distance, mass, volume, energy, work momentum.</p> <p>Guide learners to identify a vector as a movement (distance) along a given bearing.</p>	

$$\vec{AB} = \begin{pmatrix} a \\ b \end{pmatrix}$$

FREE VECTORS

They are denoted by a pair of block letters and an arrow.

POSITION VECTORS

They are denoted by small letters printed in bold type.

Write this on the board and guide learners to interpret it.

$\vec{AB} = \begin{pmatrix} a \\ b \end{pmatrix}$. The horizontal component **a**, is measured along the x-axis and the vertical component, **b** is measured along the y-axis from A to B.

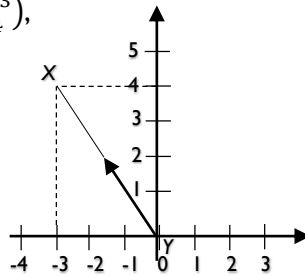
$\vec{AB} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$. Means a particle is moved 4units to the right and 5units upwards from point A to another point B.

In groups, learners interpret the following vectors.

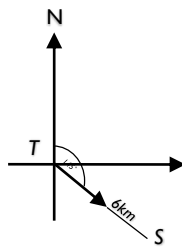
$$\vec{XY} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}, \quad \vec{PQ} = \begin{pmatrix} 3 \\ 6 \end{pmatrix}, \quad \vec{MN} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}.$$

Guide learners to represent vectors graphically.

E.g. $\vec{XY} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}$,



E.g. 2. $\vec{TS} = (6\text{km}, 145^\circ)$.



Assessment

Express the following graphically;

1) $\vec{PQ} = \begin{pmatrix} 3 \\ 6 \end{pmatrix}$, 2) $\vec{BC} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$.

3) $\vec{AB} = (3\text{km}, 060)$

4) $\vec{QR} = (5\text{km}, 120)$.

PHASE 3: REFLECTION

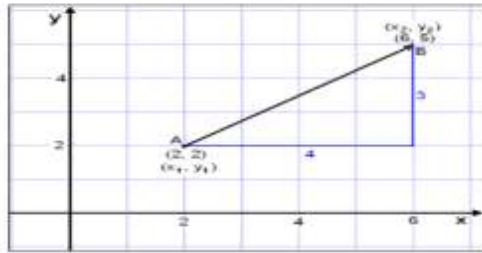
Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson.

Week Ending: 21 st OCT, 2022	DAY:	Subject: Mathematics
Duration: 60MINS		Strand: Geometry & Measurement
Class: B7	Class Size:	Sub Strand: Scalar and Vector Quantities
Content Standard: B7.3.2.3 Demonstrate understanding of bearings, vector and its components using real life cases	Indicator: B7.3.2.3.4-5 Represent vector in the column form x/y and determine its magnitude and direction	Lesson: 2 of 2
Performance Indicator: Learners can represent vector in the column form x/y and determine its magnitude and direction.		Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)
References: Mathematics Curriculum Pg. 70-71		

Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	<p>Revise with learners on the previous lesson.</p> <p>Share performance indicators and introduce the lesson.</p>	
PHASE 2: NEW LEARNING	<p>Write this questions and task learners to express them graphically.</p> <p>1) $\overrightarrow{PQ} = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$, 3) $\overrightarrow{AB} = (2\text{km}, 030)$</p> <p>Give learners time to solve and call volunteers to share their answers with the class.</p> <p>Revise with learners that vectors can be represented by;</p> <ul style="list-style-type: none"> • Column or component form = $\begin{pmatrix} 1 \\ 4 \end{pmatrix}$ • Magnitude and bearing form = $\overrightarrow{AB} = (2\text{km}, 030)$ <p>In groups, let learners write each of the following as column vectors using graph.</p> <p>$\overrightarrow{CD} = (5\text{km}, 030^\circ)$, $\overrightarrow{AB} = (25\text{km}, 150^\circ)$</p> <p>Let learners use any other method apart from graph to write the following as column vectors and find it magnitude and direction;</p> <p>$\overrightarrow{ST} = (10\text{km}, 270^\circ)$ $\overrightarrow{PQ} = (70\text{km}, 090^\circ)$</p> <p>Guide learners to convert vectors in the column (component) form x/y to the Magnitude –Bearing form (k, θ) and vice versa.</p> <p>Use the Pythagorean theorem to find the length or the magnitude of a vector.</p>	

$$|\overline{AB}| = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



Assessment

Find the magnitude and the direction of the following vectors

$$\overline{AB} = \begin{pmatrix} 12 \\ 15 \end{pmatrix}$$

$$\overline{QR} = \begin{pmatrix} 15 \\ 9 \end{pmatrix}$$

PHASE 3:
REFLECTION

Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson.

Graph sheet,
Protractor,
Ruler